

PROJECT PREPARATORY TECHNICAL ASSISTANCE

A. Justification

1. Various aspects of due diligence will be conducted through the project preparatory technical assistance (TA):

- (i) **Technical.** A draft feasibility study, and due diligence on the identified subprojects with design, construction schedule, and cost estimates will be prepared.
- (ii) **Economic and financial.** Conduct economic analysis for the proposed whole and individual subprojects in the first tranche based on the ADB Guidelines for the Economic Analysis of Projects and ensure that the analysis covers the 10 key areas of economic analysis, with emphasis on demand analysis, identification of project alternatives, least cost analysis, cost of benefit analysis, sensitivity analysis, risk analysis, and distribution analysis. Financial analysis of the proposed subproject shall be conducted in accordance with ADB's financial management and analysis to confirm financial viability of the subprojects. Corporate financial assessment will also be conducted to assess necessary measures to achieve and maintain financial soundness of the implementing agencies.
- (iii) **Governance.** The financial management, procurement, anticorruption and overall project management capacity of the executing and implementing agencies will be assessed.
- (iv) **Poverty and social.** Social and poverty analysis including sex-disaggregated impact assessment will be conducted for the preparation of the summary of poverty reduction and social strategy with focus on benefit-incidence analysis and affordability analysis based on the recent household survey, and qualitative social assessment.
- (v) **Safeguards.** An initial environmental examination and an environment management plan will be prepared for the first tranche to demonstrate adherence to ADB's Safeguard Policy Statement (2009), and national law and regulations. The environment assessment and review framework to be prepared will include screening criteria which exclude subprojects with safeguard category A in environment. The screening criteria for social safeguard will also be prepared to exclude subproject with safeguard category A and B in involuntary resettlement, and in indigenous people.

B. Major Outputs and Activities

2. The major outputs and activities are summarized in Table A3.1.

Table A3.1: Summary of Major Outputs and Activities

Major Activities	Expected Completion Date	Major outputs	Expected Completion Date
Conduct due diligence of candidate subprojects	October 2017	Draft feasibility study report, EARF, IEE including EMP	October 2017
Hold inception, midterm, and final workshops	January 2017 (Inception) October 2017 (Midterm) May 2018 (Final)		

EARF = Environment Assessment and Review Framework, EMP = Environment Management Plan, IEE = Initial Environmental Examination

Source: Asian Development Bank estimates.

C. Cost Estimate and Proposed Financing Arrangement

3. The TA is estimated to cost \$1,500,000 equivalent, and will be financed on a grant basis from the Strategic Climate Investment Fund administered by ADB. The detailed cost estimate is presented in Table A3.2.

Table A3.2: Cost Estimates and Financing Plan
(\$'000)

Item	Total Cost
A. Asian Development Bank^a	
1. Consultants	
a. Remuneration and per diem	
i. International consultants (28 person-months)	723.0
ii. National consultants (65 person-months)	275.0
b. International and local travel	150.0
c. Reports, translations, and communications	10.0
2. Equipment ^b	25.0
3. Workshops, training, seminars, and conferences ^c	20.0
4. Surveys ^d	145.0
5. Representative for Contract negotiations	6.0
6. Miscellaneous administration and support costs	10.0
7. Contingencies	136.0
Total	1,500.0

Note: The total cost of the TA amounts to \$1,650,000. The Government will provide in-kind counterpart support and services, whose value is estimated to account for 9% of the total TA cost.

^a Proposed for financing under the Scaling up Renewable Energy Program in Low Income Countries by the Strategic Climate Fund administered by Asian Development Bank.

^b Advance payment facility applies: Grid stability analysis software license, and two laptop computers which will be used by the consultants during TA implementation and handed over to the executing agency upon TA completion.

^c Advance payment facility applies to the following: Inception workshop (Ulaangom), Midterm workshop (Ulaangom), Seminar/consultation (Choybaisan and Altay), and Final workshop (Ulaanbaatar).

^d Advance payment facility applies: Solar resource assessment, wind resource assessment, geological assessment, hydrological assessment, environmental baseline survey, and social and household survey.

Source: Asian Development Bank estimates

D. Consulting Services

4. It will be implemented over an 18-month period and is expected to start in February 2017 and be completed in July 2018. The TA will require a total of 28 person-months of international and 65 person-months of national consulting services. The required positions and person-months are indicated in Table 2. The outline terms of reference for consultants are below. The consulting firm will be engaged by ADB using the quality- and cost-based method with a standard quality and cost ratio of 90:10, in accordance with the Guidelines on the Use of Consultants (2013, as amended from time to time). The proceeds of the TA will be disbursed in line with ADB's *Technical Assistance Disbursement Handbook* (2015, as amended from time to time).

Table A3.3: Summary of Consulting Services Requirement

International Name of Positions	Person-months	National Name of Positions	Person-months
1. Senior Renewable Energy Specialist/Team Leader	6.0	1. Renewable Energy Specialist/Deputy Team Leader	11.0
2. Solar Photovoltaic System Engineer	4.0	2. Solar Photovoltaic System Engineer	8.0
3. Wind Power Engineer	3.0	3. Wind Power Engineer	7.0
4. Small Hydropower Engineer	3.0	4. Small Hydropower Engineer	7.0
5. Shallow Ground Heat Pump Engineer	3.0	5. Shallow Ground Heat Pump Engineer	7.0
6. Environment Specialist	4.0	6. Environment Specialist	7.0
7. Social Safeguards and Analysis Specialist	2.0	7. Social Safeguards and Analysis Specialist	7.0
8. Financial Management Specialist	2.0	8. Financial Management Specialist	4.0
9. Energy Economist	1.0	9. Energy Economist	3.0
		10. Procurement Specialist	4.0
Subtotal (A)	28.0	Subtotal (B)	65.0

Source: Asian Development Bank estimates.

5. The outline terms of reference for the project preparatory TA consultants are described in paras. 6 to 15.

6. **Senior Renewable Energy Specialist/Team Leader** (international 6.0 person-months) and **Deputy Team Leader** (national 11.0 person-months). The expert should have post graduate degree in engineering or relevant field, and 10–15 years of relevant working experience. The experts will carry out megawatt class distributed renewable energy system development planning, and grid stability analysis related to distributed renewable energy system integration into the existing grid.

7. **Solar Photovoltaic System Engineer** (international 4.0 person-months, national 8.0 person-months). The experts should have post graduate degree in engineering or relevant field, and at least 5–10 years relevant working experience. The experts will carry out utility scale (10 megawatts or more) solar photovoltaic plant design and costing.

8. **Wind Power Engineer** (international 3.0 person-months, national 7.0 person months). The experts should have post graduate degree in engineering or relevant field, and at least 5–10 years relevant working experience. The experts will carry out utility scale wind power plant design and costing.

9. **Small Hydropower Engineer** (international 3.0 person-months, national 7.0 person-months). The experts should have post graduate degree in engineering or relevant field, and at least 10 years relevant working experience. The experts will carry out a small run-of-the river hydropower system design and costing.

10. **Shallow Ground Heat Pump Engineer** (international 3.0 person-months, national 7.0 person-months). The experts should have post graduate degree in engineering or relevant field, and at least 5–10 years relevant working experience. The experts will carry out shallow ground heat pump installation design and costing.

11. **Environment Specialist** (international 4.0 person-months, national 7.0 person-months). The experts will carry out environment safeguard due diligence, and should have post graduate degree in environment management or relevant field, and at least 10 years working experience

including environment impact assessment for renewable energy projects, and for the projects funded by ADB and the World Bank.

12. **Social Safeguards and Analysis Specialist** (international 2.0 person-months, national 7.0 person-months). The experts will carry out social safeguard due diligence and social assessments, and should have post graduate degree in social science or relevant field, and at least 10 years working experience including social safeguard assignment for the project funded by ADB and the World Bank. Meaningful experience in benefit-incidence analysis, and affordability analysis for the poor and low income households are an advantage.

13. **Financial Management Specialist** (international 2.0 person-months, national 4.0 person-months). The experts should have a qualification of the chartered accountant, the certified public accountant, or equivalent, and minimum 10 years working experience. The expert will prepare a cost estimate and financing plan, undertake financial management assessment of the executing and implementing agencies, financial cost-benefit evaluation of the whole and individual subprojects, corporate financial analysis of the executing and implementing agencies (local public utilities), and prepare suggested financial covenants, referring to ADB's financial management resources.¹

14. **Energy Economist** (international 1.0 person-month, national 3.0 person-months). The experts will carry out economic analysis of the project for renewable energy capacity addition and capacity development for local public utilities, and should have a qualification of post graduate degree in Economics, or equivalent, and minimum 10 years working experience.

15. **Procurement Specialist** (national, 4 person-months). The expert will carry out procurement capacity assessment and drafting bidding documents for core subprojects, and should have post graduate degree in Engineering or in relevant field at least 10 years of experience in public procurement and procurement for works, goods, and services financed by international development partners. Experience in ADB and the World Bank financed procurement is an advantage.

E. Implementation Arrangements

16. The executing agency will be the Ministry of Energy and implementing agencies will be the Western Region Energy System State Owned Corporation, the Altai-Uliastai Energy System State Owned Corporation, the Eastern Energy System State Owned Corporation, and National Renewable Energy Center. The executing and the implementing agencies will provide support to the consultants, including (i) arranging meetings with relevant government agencies; and (ii) providing access to all data including documents, reports, drawings and maps, as appropriate and necessary, to undertake the work.

17. The proposed TA processing and implementation schedule is listed in Table A3.4.

Table A3.4: Technical Assistance Processing and Implementation Schedule

Major Milestones	Expected Completion Date
Concept paper approval	November 2016
The TA Letter of Agreement	December 2016
Consulting services selection	November 2016–January 2017 (3 months)
Fielding of consultants	February 2017
Inception workshop	February 2017
Midterm workshop	October 2017

¹ <http://www.adb.org/projects/operations/financial-management-resources>

Major Milestones	Expected Completion Date
Final workshop	May 2018
Physical completion	July 2018
Financial closure	October 2018